

## CLAIMS

1. A device for protecting against arcing events solar array panels and control equipment supplying a main power bus, said control equipment  
5 comprising a regulator for controlling a solar array voltage ( $V_S$ ) including a power dump stage (3) for shunting said solar array voltage as a function of a control signal (DoD),  
characterized in that it comprises:

10 a voltage drop detection circuit (1) for detecting a voltage drop in the solar array voltage provided by said solar array panels, said voltage drop detection circuit generating a voltage drop detection signal ( $V_D$ ), and

an arc-quenching circuit (2) comprising means for generating an output signal ( $V_O$ ) which is applied as said control signal (DoD) to the power dump stage (3) so as to shunt said solar array voltage ( $V_S$ ) when a voltage drop is  
15 detected by said voltage drop detection circuit.

2. The device according to claim 1, wherein said arc-quenching circuit (2) further comprises means for shaping said output signal ( $V_O$ ) so as to provide a short initial delay without any action subsequent to a voltage drop  
20 detection provided by said voltage drop detection signal ( $V_D$ ), and after said initial delay an arc-quenching pulse which triggers said power dump stage (3) so as to shunt said solar array voltage ( $V_S$ ).

3. The device according to claim 2, wherein said arc-quenching  
25 circuit (2) further comprises a first monostable (I2) controlling said initial delay and a second monostable (I1) controlling the width of said arc-quenching pulse.

4. The device according to claim 2 or 3, wherein said initial delay is set to about 19 ms and said arc-quenching pulse has a width set to about 1.7 s.  
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5. The device according to anyone of claims 2 to 4, wherein said arc-quenching circuit (2) further comprises means for starting a new quenching cycle including said initial delay followed by said arc-quenching pulse as long as the voltage drop detection circuit (1) detects a voltage drop in said solar array  
35 voltage ( $V_S$ ).

6. The device according to anyone of claims 1 to 5, wherein said voltage drop detection circuit (1) comprises means (T1) for comparing said

- 10 -

solar array voltage ( $V_S$ ) to a main bus voltage ( $V_B$ ).

7. The device according to anyone of claims 1 to 6, wherein said arc-quenching circuit (2) further comprises means (G1, G4) for combining said  
5 control signal (DoD) and said output signal ( $V_O$ ) before being applied to the power dump stage (3).